

12-12-2003

02770065

CLAIMS

- 5 1. A disc brake assembly comprising an anchor bracket, a brake shoe which carries a friction pad and a piston slidably connected to the anchor bracket which is arranged such that upon movement of the piston relative to the anchor bracket the piston acts upon the brake shoe to move the shoe into contact with a brake disc, and in which the assembly further
- 10 includes a retraction mechanism which is adapted to retract the brake shoe from the disc when the piston is retracted, the retraction mechanism comprising at least one pin secured to one of the friction pad and the anchor bracket and a spring clip fixed relative to the pin which acts between the pin and the other one of the anchor bracket and the friction
- 15 pad, deformation of the spring clip as the pad is moved towards the disc providing a returning force to pull the friction pad away from the disc when the piston is retracted, and in which the spring clip is fixed in position relative to the pin during normal use but is adapted to slide along the pin in the event that the displacement of the friction pad relative to
- 20 the anchor bracket due to wear of the friction pad produces a deformation of the spring clip which exceeds a predefined limit.
- 25 2. A disc brake assembly according to claim 1 in which the pin is secured to the brake shoe and the spring clip contacts the anchor bracket.
3. A disc brake assembly according to claim 2 in which the spring clip comprises a resilient plate having an opening through which the pin passes and defining at least one wing which is in contact with the anchor bracket, the wing deforming resiliently as the friction lining moves
- 30 towards the disc.

12-12-2003

02770065

14

4. The disc brake assembly of claim 3 in which the spring clip defines at least two wings which extend in opposing directions away from the opening and each wing is in contact with the anchor bracket.
5. The disc brake assembly of any preceding claim in which the spring clip is in direct engagement with the pin.
6. The brake disc assembly of any preceding claim in which the predefined limit is dependent upon the shape and location of the spring clip which is arranged such that a force required to move the clip along the pin is only provided when the spring clip is deformed in excess of a predefined amount.
7. The brake disc assembly of any preceding claim in which the engagement of the spring clip with the pin is such that the force required to move the clip along the pin away from the friction lining is greater than that required to move it along the pin towards the friction lining.
8. The brake disc assembly of any preceding claim in which the spring clip is permitted to move along the pin in only a single direction.
9. The brake disc assembly according to any preceding claim in which the retraction device also provides a biasing force to the friction pad as it is displaced in a direction normal to the plane of the disc relative to the anchor bracket, the biasing force being provided by deformation of a portion of the spring clip.
10. The disc assembly of any preceding claim in which two retraction mechanisms are provided which are located at or adjacent each end of the brake shoe.

12-12-2003

02770065

15

11. A brake shoe assembly for use in a disc brake assembly according to any preceding claim.
12. A brake shoe assembly which includes a friction lining adapted for
5 use in a disc brake assembly having at least one pin secured to the brake shoe which carries a spring clip, the spring clip co-operating with the pin through a sliding frictional engagement and having at least one deformable wing which is adapted to contact an anchor bracket of the disc brake assembly, and whereby the engagement between the clip and the pin
10 is such that the clip is fixed relative to the pin until a force applied to the clip exceeds a predetermined limit whereby the clip is adapted to slide along the pin away from the brake shoe.
13. A brake shoe assembly according to claim 12 in which the
15 engagement of the clip with the pin is such that the clip is prevented from sliding along the pin towards the brake shoe.
14. A brake shoe assembly according to claim 12 or claim 13 in which the spring clip includes one or more tangs which are bent out of the plane
20 of the spring clip towards the brake shoe assembly and project into the opening through which the pin passes to resiliently engage the pin.
15. A brake shoe assembly according to any one of claims 12 to 14 in which the spring clip comprises a resiliently deformable star washer.
25
16. A brake shoe assembly according to any one of claims 12 to 15 in which a pin is provided at each end of the brake shoe, each pin carrying a respective spring clip.

12-12-2003

02770065

16

17. A brake shoe assembly according to any one of claims 12 to 16 in which the or each pin is fixed at least partially within a bore provided in the brake shoe.

5